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AUTHOR	Klokeid, Terry J.
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ABSTRACT

The feature system of Nitinaht is characterized by extensive exploitation of the possible glottal and pharyngeal articulatory notions. The proposed orthography for Nitinaht partially reflects the distinctive feature composition of segments, in particular for affricate (delayed release) and glottalized (constricted glottis) consonants. (Author)

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The Nitinaht Feature System: a Reference Paper[1]

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Terry J. Klokeid
The University of Calgary

SYNTACTIC AND MORPHOLOGICAL PRELIMINARIES

In Nitinaht, all prepositions and some verbs take prefixes: the prefix /ʔo-/ registers the presence of a definite NP complement, while /hit-, hida-/ indicates that there is no definite complement. When an NP undergoes relativization, the formative /yaq-/ replaces it -- this obligatorily prefixes to the verb or preposition. Interrogatives also prefix in this way, contrast /ʔō-yoq ya/ 'DEF-ACC(usative) him'; /ʔatc-iyoq/ 'who-ACC'. Quantifiers also incorporate like this, but evidently not obligatorily, e.g. /ʔō-yoq dōb/ 'DEF-ACC all, both' /dōb-iyoq/ 'all/both-ACC'. Adjectives and nouns can be likewise incorporated, but this is rare in Nitinaht, and constrained in ways I do not fully understand.

Derivational suffixes exist; as do inflectional suffixes. Two types of inflectional suffixes can be distinguished, according to their syntactic origin: (1) those present in cycle-initial structure (2) those introduced by cyclic syntactic rules. Examples of the former are the aspectual formatives, e.g. /-citl/ 'momentaneous'. Examples of the latter are: /-ʔīt/ 'passive'. There are also several classes of enclitic morphemes, which end up attached by Wackernagel's Law, to the first word of the phrase or clause, e.g. /-ʔāʔis/ 'future'; /-qik/ 'content question'.

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Phonetically suffixed formatives have, then, these three syntactic sources, and this is reflected by the way phonological rules may apply, as I will show in a sequel to this paper.

ORTHOGRAPHY

Any orthography for Nitinaht that is proposed at this time must be regarded as experimental.[2] The alphabet below has to be viewed in this way. In alphabetical order, it is: ʔ a ā b b' c d d' h i ī ɬ k k' kw kw' l ll ll' o ō p p' q q' qw s t t' tc tc' tl tl' ts ts' w w' x xw x̣ x̣w y y'. The usual phonetic values are described in the key.

CONSONANTS

STOPS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Voiceless	p	t	ts	tc	tl	k	kw	q	qw	ʔ	q'
Glottalized	p'	t'	ts'	tc'	tl'	k'	kw'				
voiced	b	d									
Vd, pre-glott.	b'	d'									
FRICATIVES											
voiceless			s	c	l	x	xw	x̣	x̣w	h	
SONORANTS											
voiced				y	ll		w				
Vd. pre-glott.				y'	ll'		w'				

VOWELS

	Short		Long	
High	i	o	ī	ō
Low	a		ā	

Key (Note: Here words are written in broad phonetics "taxonomic phonemics". It might be desirable to have a more abstract spelling.

(1) bilabial

p pāsak 'damp' patlcitl 'put fire to'

p' top'al 'salt, salt water' p'ayāl 'feather'

b bīcapx̣ 'blue huckleberry'

bādokw 'to fly'

b' tl'ob'atc 'roots'

(2) apico alveolar

t tu?il 'sick'

t' sat'Īw 'come' t'apsā 'dive'

t'a?ā 'tie' t'aqwā 'believe'

d disib'āk 'land' ?adak 'fire'

d' bablad' 'white person'

(3) apico alveolar (affricate)

ts tsīx̣apx̣ 'crabapple' ?atskatā 'jump'

?ōtsax̣ad 'for'

ts' pits'ip 'cedar bark' ts'aqabs 'bark (other than cedar bark)'

ts'oqcitl 'punch'

(fricative)

s sop'tsibs 'sand'

Tlō?ōs 'Clo-oose'

(4) palato-alveolar

(affricate)

tc tcabsapt 'balsam fir tree' tcitci 'tooth' tcakop 'man'

tc' tc'a?ak 'fresh water' tatc' 'belly'

tc'ī́kwāl 'dog' tc'alatc' 'nail, hoof'

(fricative)

c bocā 'fish weir'

cī́tlok 'moving'

(sonorant)

y tlāyōtc 'dead-heads' yobol 'can't' yad'aqk 'child'

y' siy'a 'I, me'

(5) lateral

(affricate)

tl tladit 'hammer (for wedge)' kōtlak 'open' ?atl 'two'

?odōtl 'because' tlatapt 'yew'

tl' tl'ī́dqabs 'smoke' tl'ix̣apx̣ 'red huckleberry'

tlax̣tqī́lib 'saucer'

(fricative)

l bōlokw 'high tide'

(sonorant)

ll qalli 'eye'

llipl̈āc 'plank'

sapllill 'bread'

(6) front velar

k bocak 'closed' wik 'no'

kallekalli 'ankle bone', 'spindle for cable'

k' k'ōk 'maggot'

x xad'a?k 'woman'

(7) rounded front velar

kw t'iditckw 'stone', ?ōkwĪl 'make'

kw' kw'Īs 'snow'

xw pōxwā 'puff up' bitxwā 'go around' toxwā 'spit'

(rounded sonorant)

w ?akwādic 'sea lion' wāsqoy 'when?"

wā 'say' wāwid 'hunting'

w' sow'a 'you'

(8) back velar

q qaway 'salmonberry' qitcĪd 'louse' ?adĪq 'how many'

ẋ ẋobis 'cedar tree' tl'iẋaq 'skin' waẋā 'throw away'

?iyaẋ 'in, at' ?Īẋ 'big'

(9) rounded back velar

qw qwiniy 'seagull'

ẋw ?ōẋwaw'āl 'with, using' tc'iẋwatctl 'be scared'

(10) glottal

? ?aptā 'hide' ?owiy 'go' ba?as 'house' ?o?Īẋ 'on account of'

h hitaqōs 'far out at sea' hĪ? 'yes' hopatckt 'island'

(11) pharyngeal

q' q'ōts'aqtp 'berries' q'ōyāk 'medicine biq'āt 'sockeye'

wa?itcq'ayqtl 'sleepy' q'apāk 'willing' q'akwā 'whittling'

VOWELS

Front Unrounded

i qwitlqapc 'hemlock' pisatkw 'run'

Ī ?itsĪts 'thimbleberry' ?atẋĪy 'night' ?oẋwĪt 'by' ?Īk 'son'

Back Rounded

o dotci? 'mountain' ʔoχ̣wtak 'was it you?' topkok 'black'

ō tōχ̣opt 'spruce tree' dōb 'all, both' habōt 'bone' ʔōyoq 'to'

Back [illegible]rounded

[illegible] sabaχ̣tkapt 'fir tree' tasā 'rub' ta?il 'sick'

ā tā?ok 'adrift' dātcīl 'watching'

THE FEATURE SYSTEM

As in many Northwest Coast and other Native Indian languages, the feature system of Nitinaht is characterized by extensive exploitation of the possible glottal and pharyngeal articulatory motions.[3]

1. Slack vocal chords

The release of built up pressure in phonation causes the vocal chords to vibrate, resulting in the so-called voiced sounds. In a language like English it is well known that the voicing onset is delayed slightly. Slackening of the vocal chords from their neutral position -- as in Nitinaht or French -- permits a sound to be fully voiced. The following segments are [+ slack vocal chords]: /b d ll w y/; /b' d' ll' w' y'/; and all the vowels. Certain sounds generally confined to proper names and loans are also characterized by this feature: /m n m' n'/. All other segments are [-slack vocal chords].

2. Stiff vocal chords

The vocal chords do not remain in the neutral position for any segment of Nitinaht. All segments which are [-slack vocal chords] involve stiffening of the vocal chords. When they are stiffened, the vocal

chords cannot vibrate, and so the so-called 'voiceless' sounds are articulated. The [+ stiff vocal chord] segments are: /p t ts tc tl k kw q qw q'/; /p' t' ts'tc' tl'k'kw' ?/; /s c l x xw x̣ x̣w h/.

The voiced lateral /ll/, is much rarer than the voiceless one /l/. For this reason, the single letter is used for the latter, usually written 'barred el' by linguists and lth by many native people. For example, the newspaper name Hashilthsa has the spelling Hacilsa in the orthography used here.

3. Spread glottis (open vocal chords)

Independently of slackening or stiffening, the vocal chords can be opened during phonation. This produces aspiration, as for the sound /h/ and the stops /p t ts tc tl k kw q qw/. All other segments are [-spread glottis].

4. Constricted glottis (closed vocal chords)

If the vocal chords are not opened from the neutral position, then they may be constricted. The [+ constricted glottis] or 'glottalized' segments comprise the following consonants: the glottal stop /?/; the pharyngeal stop /q'/; glottalized stops /p' t' ts' tc' tl' k' kw'/; and the glottalized sonorants /w' y' ll'/; /m' n'/. The diacritic /'/ (apostrophe) marks [+ constricted glottis].

For some sounds, the vocal chords remain in neutral position: these [- spread glottis, - constricted glottis] segments are: /b d/; /s c l x xw x̣ x̣w/; /ll w y/; /m n/.

5. Slack vocal chords and constricted glottis

The stiffening/slackening and spreading/ constricting of the

vocal chords are independently controllable articulatory motions. The segments which are [+ slack vocal chords, + constricted glottis] are: /b' d'/; /l1' w' y'/; m' n'/. However, the glottal constriction of these sounds has a somewhat different status than for the constricted glottis sounds, /p' t' ts' tc' tl' k' kw'/. With the latter, the release of the glottal constriction coincides with the oral release involved, but for the former, /b' d' l1'/ etc., the release of the glottal constriction actually precedes the onset of the oral articulatory motion. Thus /b' d' l1'/ etc. have been called 'pre-glottalized' and perceptually a segment like /b'/ sounds like the sequence /ʔb/.

6. Constricted pharynx

A narrowing at the pharynx is a further possible articulatory motion, one which occurs for the Nitinaht segment /q'/, the 'laryngeal stop' or 'pharyngeal stop'.

Thus this sound is articulated by making a glottal constriction, sealing off that area, and as well a pharyngeal constriction.

There is a sound /ḥ/, found in a few words of Nitinaht, which is made with a pharyngeal constriction, but without glottal constriction. Instead, it is articulated with a spread glottis.[4]

Other places where articulatory constrictions may take place besides the vocal chords, and pharynx are the lips, tongue body, and the back of the tongue.

7. Labial

The following segments all involve labial constriction: /p b w/; /p' b' w'/; /m m'/, /o/. They all have minus values for the features syllabic, coronal, delayed release, spread glottis, and constricted pharynx. They have no defined value for the features forward, distributed, lateral, high.

	p	b	w	p'	b'	w'	m	m'
Sonorant	-	-	+	-	-	+	+	+
Consonantal	+	+	-	+	+	-	+	+
Round	-	-	+	-	-	+	-	-
Nasal	-	-	-	-	-	-	+	+
Continuant	-	-	+	-	-	+	-	-
Slack Vocal Chords	-	+	+	-	+	+	+	+
Stiff Vocal Chords	+	-	-	+	-	-	-	-
Constricted Glottis	-	-	-	+	+	+	-	+

8. Coronal

The class of coronal sounds are those produced by raising the blade of the tongue from its neutral position. They are: /s d ts tc tl/; /t' d' ts' tc' tl'/; /s c l/; /y ll/; /y' ll'/; and the rare sounds /n n'/. All other segments are non-coronal.

Several features play a role in distinguishing among the coronals. The coronal stops (non-continuants) are divided into those with a delayed release (the 'affricates') versus those with a non-delayed, i.e. instantaneous, release. Certain coronal segments are produced with an obstruction that is forward ('anterior') of the palato-alveolar ridge;

and the other coronals are non-forward. Some are produced with a lateral release. Some are produced with a high tongue body, i.e. with the tongue body raised from the neutral position. Coronal sounds can be produced using the flat part of the tongue, yielding a distributed air flow, or using the tip, yielding a concentrated air flow. These features are tabulated for all the coronals below.

NON-CONTINUANT CORONALS

	delayed release	forward	lateral	high	distributed
t	-	+	-	-	-
d	-	+	-	-	-
ts	+	+	-	-	-
tc	+	-	-	+	+
tl	+	-	+	-	+

CONTINUANT CORONALS

	forward	lateral	high	distributed
s	+	-	-	-
c	-	-	+	+
l	+	+	-	+
y	-	-	+	+
ll	+	+	-	+
n	+	-	-	-

Each segment in the constricted glottis series /t' d' ts' tc' tl' y' ll' n'/ shares with the corresponding non-constricted glottis segment the same values for the above features.

The feature [+ delayed release] is reflected in the orthography by double letters: the first, t, indicates that these are coronals, and the second, variously s, c, l, indicates the distinctive manner of release.

The features not included in the above tables are set out below. All these segments are [-syllabic, -labial, + coronal, -low, -back, - round, -constricted pharynx.].

	t	d	ts	tc	tl	t'	d'	ts'	tc'	tl'	s	c	l	y	ll	y'	ll'	n	n'
sonorant	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+
nasal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
continuant	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+
slack vocal chords	-	+	-	-	-	-	+	-	-	-	-	-	-	+	+	+	+	+	+
stiff vocal chords	+	-	+	+	+	+	-	+	+	+	+	+	+	-	-	-	-	-	-
spread glottis	+	-	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
constricted glottis	-	-	-	-	-	+	+	+	+	+	-	-	-	-	-	+	+	-	+

9. Non-labial non-coronal

The following segments are produced neither with the lips nor the blade of the tongue and so require some other constriction to be defined /k x kw xw q qw x̣ xẉ /; /k' kw'/; /h ʔ q'/.

The articulation of the latter three is determined solely by the glottal and pharyngeal features treated in nos. 1-6 above. The other segments are produced by the back part or body of the tongue. Raising the back part of the tongue to a high position produces /k x

kw xw k' k'w/. Retracting the tongue body to a position back of the neutral position yields /q qw χ̣ χ̣w/. A number of the above sounds involving lip rounding, and this is shown by the letter w in their representation: /kw xw qw χ̣w/. Apart from these, the only rounded segments in Nitinaht are the labial glides /w w'/ and the back vowels /o ō/.

Below are tabulated all the segments that are [-sonorant, -syllabic, -labial, -coronal, o forward, o distributed, o lateral, -nasal, -slack vocal chords, + stiff vocal chords].

	k	x	kw	xw	q	χ̣	qw	χ̣w	k'	kw'	h	?	q'
consonantal	+	+	+	+	+	+	+	+	+	+	-	-	-
high	+	+	+	+	-	-	-	-	+	+	-	-	-
back	-	-	-	-	+	+	+	+	-	-	-	-	-
round	-	-	+	+	-	-	+	+	-	+	-	-	-
continuant	-	+	-	+	-	+	-	+	-	-	+	-	-
spread glottis	+	-	+	-	+	-	+	-	-	-	+	-	-
constricted glottis	-	-	-	-	-	-	-	-	+	+	-	+	+
constricted pharynx	-	-	-	-	-	-	-	-	-	-	-	-	+

10. Syllabic segments

The sounds considered in section 1-9 are non-syllabic, i.e. 'consonants'. The segments which are [+ syllabic] are listed below with the relevant features.

	i	ĭ	a	ā	o	ō
high	+	+	-	-	+	+
low	-	-	+	+	-	-
back	-	-	+	+	+	+
round	-	-	-	-	+	+
long	-	+	-	+	-	+

The so-called 'variable vowels' of Sapir and Swadesh (1939) do not have to be distinguished phonetically or underlyingly for any West Coast language, as I have shown in Klokeid (1975).

FOOTNOTES

[1]I am grateful to the many Nitinaht people who have been teaching me their language since 1966. I received financial support for studying the West Coast languages from the Canada Council and the National Museum of Man, as well as the U.S. American Philosophical Society. It should be obvious that I am building on the work of Haas and Swadesh (1933) and Sapir and Swadesh (1939), etc., etc.

[2]This orthography follows very closely on the practice of Alec Thomas (1915-) and has benefitted from comments by Ron Hamilton.

[3]In general, I am using the Chomsky-Halle (1968) feature system with a few minor modifications that Halle has suggested since. However, the glottal and pharyngeal features are based on work by Halle and Stevens (1971).

[4]This sound is very common in the languages to the north of Nitinaht, where it corresponds to Nitinaht /x̣/ or /x̣w/, cf. Nitinaht /x̣obis/ 'cedar' and the corresponding word /ḥomɬs/ in Tseshaht, Kyuoquot, Chiclisit, and other languages. The historical relationship of /x̣ x̣w/ and /ḥ/ is explained in Jacobsen (1969). In discussion with Alan Kaye after his CLA (1975) paper, some aspects of the pharyngeal segments were clarified for me.

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